

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named

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Appln. No.:

Filed : HEREWITH

For : PROCESS AND DEVICE FOR
CALCULATING THE POSITION OF A
MOBILE STATION, CORRESPONDING
COMPUTER PROGRAM AND MEMORY
MEDIUM

Group Art Unit:

Examiner:

Docket No.: S98.12-0001

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231
Sir:

EXPRESS MAIL NO: EL844349454US
DATE OF DEPOSIT: September 28, 2001

Prior to the calculation of fees, please amend the
above-identified application as follows:

IN THE CLAIMS

Please cancel claim 11 and amend claims 1-6, 8, 10 and 12
as follows:

1. (Amended) Process for calculating the position of a mobile
station (MS) belonging to a cellular radiocommunication system,
starting from an identifier of a current geographic cell in which
the said mobile station is located,
characterized in that it includes the following steps:

- calculate a modeled geographic representation (5) of
the current cell;
- calculate the barycentre (6) of the said modeled
geographic representation of the current cell;
- calculate an uncertainty area (7), with a predetermined
geometric shape, centered on the said barycentre and the area of
which is approximately equal to the area of the said modeled
geographic representation of the current cell;

and in that the position of the mobile station is defined by the said barycentre, with an uncertainty equal to the said uncertainty area.

2.(Amended) Process according to claim 1, characterised in that the said calculation of a modeled geographic representation (5) of the current cell consists of using a radio prediction tool to calculate a set of points in which the radio frequency field in the current cell is stronger than that in other cells.

3. Process according to claim 2, characterised in that the said geometric shape belongs to the group comprising;

- disks;
- polygons, preferably hexagons, squares and equilateral triangles.

4.(Amended) Process according to claim 2, characterised in that the said geometric shape is a polygon
and in that the said polygon is oriented along the largest direction of the current cell.

5.(Amended) Process according to claim 2, characterised in that the position of the mobile station is calculated dynamically.

6.(Amended) Process according to claim 2, characterised in that it comprises a prior step to extract the identifier of the current cell from at least one signal message circulating on the radiocommunication system network.

7. Claim 7 is unchanged.

8.(Amended) Process according to claim 2, characterised in

that the position of the mobile station and the associated uncertainty are input into a positioning database (2) so that at least one geodependent service can be provided.

9. Claim 9 is unchanged.

10. (Amended) Device according to claim 9, characterised in that it is integrated into a radio frequency planning tool (4) for the geographic cells in the said cellular radiocommunication system.

11. Claim 11 is canceled.

12. Computer program intended for calculating the position of a mobile station (MS) belonging to a cellular radiocommunication system starting from an identifier of a current geographic cell in which the said mobile station is located, the said computer program comprising portions / means / program code instructions recorded on a medium that can be used in a computer, comprising:

- programming means that can be read by a computer to perform the calculation step for a modeled geographic representation (5) of the current cell;

- programming means that can be read by a computer to perform the calculation step to determine the barycentre (6) of this said modeled geographic representation of the current cell;

- programming means that can be read by a computer to perform the calculation step to determine an uncertainty area (7) with a predetermined geometric shape centered on the said barycentre and the area of which is approximately equal to the area of the said modeled geographic representation of the current cell;

the position of the mobile station being defined by the barycentre, with an uncertainty equal to the uncertainty area.

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Please add new claims 13-21 as follows:

13.(New) Process according to claim 1, characterised in that the said geometric shape belongs to the group comprising;

- disks;
- polygons, preferably hexagons, squares and equilateral triangles.

14.(New) Process according to claim 1, characterised in that the said geometric shape is a polygon
and in that the said polygon is oriented along the largest direction of the current cell.

15.(New) Process according to claim 1, characterised in that the position of the mobile station is calculated dynamically.

16.(New) Process according to claim 1, characterised in that it comprises a prior step to extract the identifier of the current cell from at least one signal message circulating on the radiocommunication system network.

17.(New) Process according to claim 16, characterised in that the said extraction is triggered if at least one of the following conditions is satisfied when the mobile station makes a call:

- the number of the mobile station belongs to a predetermined list of calling numbers;
- the number called by the mobile station belongs to a predetermined list of called numbers;
- the current cell belongs to a predetermined list of cells.

18.(New) Process according to claim 1, characterised in that the

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position of the mobile station and the associated uncertainty are input into a positioning database (2) so that at least one geodependent service can be provided.

19.(New) Computer program according to claim 12, characterised in that the said programming means to perform the calculation step for a modeled geographic representation of the current cell consists of programming means to calculate a set of points in which a radio frequency field in the current cell is stronger than that in other cells.

20.(New) Computer program according to claim 19, characterised in that the said programming means to perform the calculation step for determining an uncertainty area defines the geometric shape belonging to the group comprising:

- disks;
- polygons, preferably hexagons, squares and equilateral triangles.

21.(New) Computer program according to claim 12, characterised in that the said programming means to perform the calculation . step for determining an uncertainty area defines the geometric shape belonging to the group comprising:

- disks;
- polygons, preferably hexagons, squares and equilateral triangles.

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REMARKS

Favorable action is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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MARKED-UP VERSION OF REPLACEMENT CLAIMS

1.(Amended) Process for calculating the position of a mobile station (MS) belonging to a cellular radiocommunication system, starting from an identifier of a current geographic cell in which the said mobile station is located, characterized in that it includes the following steps:

- calculate a modelled geographic representation (5) of the current cell;
 - calculate the barycentre (6) of the said modelled geographic representation of the current cell;
 - calculate an uncertainty area (7), with a predetermined geometric shape, centered on the said barycentre and the area of which is approximately equal to the area of the said modelled geographic representation of the current cell;
- and in that the position of the mobile station is defined by the said barycentre, with an uncertainty equal to the said uncertainty area.

2.(Amended) Process according to claim 1, characterised in that the said calculation of a modelled geographic representation (5) of the current cell consists of using a radio prediction tool to calculate a set of points in which the radio frequency field in the current cell is stronger than that in other cells.

3. Process according to ~~either of claims 1 or claim 2~~, characterised in that the said geometric shape belongs to the group comprising;

- disks;
- polygons, preferably hexagons, squares and equilateral triangles.-

4. (Amended) Process according to ~~either of claims 1 or 2~~, characterised in that the said geometric shape is a polygon and in that the said polygon is oriented along the largest direction of the current cell.

5. (Amended) Process according to ~~any one of claims 1 to 4~~ claim 2, characterised in that the position of the mobile station is calculated dynamically.

6. (Amended) Process according to ~~any one of claims 1 to 5~~ claim 2, characterised in that it comprises a prior step to extract the identifier of the current cell from at least one signal message circulating on the radiocommunication system network.

7. Claim 7 is unchanged.

8. (Amended) Process according to ~~any one of claims 1 to 7~~ claim 2, characterised in that the position of the mobile station and the associated uncertainty are input into a positioning database (2) so that at least one geodependent service can be provided.

9. Claim 9 is unchanged.

10. (Amended) ~~Process~~ Device according to claim 9, characterised in that it is integrated into a radio frequency planning tool (4) for the geographic cells in the said cellular radiocommunication system.

11. Claim 11 is canceled.

12. Computer program intended for calculating the position of a mobile station (MS) belonging to a cellular radiocommunication

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system starting from an identifier of a current geographic cell in which the said mobile station is located, the said computer program comprising portions / means / program code instructions recorded on a medium that can be used in a computer, comprising:

- programming means that can be read by a computer to perform the calculation step for a modelled geographic representation (5) of the current cell;

- programming means that can be read by a computer to perform the calculation step to determine the barycentre (6) of this said modeled geographic representation of the current cell;

- programming means that can be read by a computer to perform the calculation step to determine an uncertainty area (7) with a predetermined geometric shape centered on the said barycentre and the area of which is approximately equal to the area of the said modelled geographic representation of the current cell;

the position of the mobile station being defined by the barycentre, with an uncertainty equal to the uncertainty area.

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